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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/803,396	03/18/2004	Ross C. Berryhill	36572-74643	5531
30450	7590	06/25/2008		
CUMMINS, INC. 11 SOUTH MERIDIAN INDIANAPOLIS, IN 46204			EXAMINER HYUN, PAUL SANG HWA	
			ART UNIT 1797	PAPER NUMBER
			MAIL DATE 06/25/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/803,396	Applicant(s) BERRYHILL ET AL.	
	Examiner PAUL S. HYUN	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 April 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 37-56 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 37-52 is/are rejected.
- 7) ☒ Claim(s) 53-56 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 March 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/18/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

REMARKS

In response to the restriction requirement mailed 3/13/08, Applicant elected to prosecute claims 37-56 and cancelled the non-elected claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims **37-39, 41, 43-51** are rejected under 35 U.S.C. 103(a) as being unpatentable over James et al. (US 5,394,744) in view of Scheying (US 2003/0033799 A1) and Arsenault et al. (US 6,029,044).

James et al. disclose a computer system coupled to a vehicle for monitoring various machineries of the vehicle, including the catalytic converter (see line 26, col. 3). The system comprises a sensor 11 for determining the efficiency of the converter, an averaging filter 15 that converts the sensor signal to a filtered value, and a comparator 17 that compares the filtered value to a threshold value and emits a fault signal to a diagnostic indicator if the filtered value exceeds the threshold value (see Abstract). The invention disclosed by James et al. differs from the claimed invention in that James et al. do not disclose that the reagent solution is analyzed to determine the efficiency of the catalytic converter. In addition, James et al. do not disclose the claimed second filter.

With respect to the reagent solution, Scheying discloses the need to monitor the concentration of the reagent solution supplied to a catalytic converter to optimize the efficiency of the catalytic converter (see [0004]-[0008]). Scheying discloses a system comprising a sensor that monitors the reagent solution and modifies the performance of the catalytic converter in response to the measurements of the sensor. One parameter that the sensor measures is the temperature of the reagent solution (see [0018]). The system further comprises a means for detecting the amount of the reagent solution

stored in the reagent supply (see [0030]). The reference discloses that the amount of reagent stored in the supply affects the concentration of the reagent delivered to the catalytic converter (see [0022]). In light of the disclosure of Scheying and given that the system disclosed by James et al. is configured to monitor the efficiency of a catalytic converter, it would have been obvious to incorporate the sensor system disclosed by Scheying to the system disclosed by James et al. to optimize the efficiency of the catalytic converter.

With respect to the second filter, Arsenault et al. disclose a system for detecting a malfunctioning signal. The system comprises two filters wherein one filter is configured to isolate noise from the signal. A comparator then compares the difference of the output of the two filters to a threshold value, thereby eliminating noise from the calculation (see Abstract). Given that James et al. disclose that noise can lead to false fault detection (see lines 60-64, col. 1), it would have been obvious to one of ordinary skill in the art to provide the system disclosed by James et al. with a second filter that can isolate noise from the signals produced by the sensor, which would enable noise to be eliminated from the signal that is compared with the threshold value.

With respect to claims 38, 39 and 51, Scheying discloses the disadvantages of both insufficient metering as well as over-metering of the reagent solution to the catalytic converter (see [0007] and [0008]). In light of this disclosure, it would have been obvious to one of ordinary skill in the art to provide the modified James et al. system with two threshold values, the values indicative of under-metering and over-metering of the reagent solution, respectively.

Claims **40, 42 and 52** are rejected under 35 U.S.C. 103(a) as being unpatentable over James et al. in view of Scheying and Prevost as applied to claims, and further in view of Mezger et al. (US 5,781,871).

None of James et al., Scheying and Prevost disclose a memory or a wireless transceiver.

Mezger et al. disclose a vehicle diagnostic system that is configured to monitor the activity of the catalytic converter (see line 13, col. 4). In the event that the activity of the catalytic converter exceeds a threshold value, the system records the value (see Abstract) and transmits the value via a wireless communication system to an external database (see lines 32-35, col. 2). The data gathered by the external database is used to update and improve the diagnostic system (see Abstract). In light of the disclosure of Mezger et al., it would have been obvious to one of ordinary skill in the art to incorporate a memory and a wireless transceiver to the modified James et al. system so that the system can communicate with an external computer and receive updates.

Allowable Subject Matter

Claims 53-56 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

James et al. disclose a computer system coupled to a vehicle for monitoring the efficiency of a catalytic converter. The system comprises a sensor 11 for monitoring the activity of the converter, a filter that receives and converts the sensor signal to a filtered value, and a comparator that compares the filtered value to a threshold value and emits a fault signal to a diagnostic indicator if the filtered value exceeds the threshold value. However, none of the references on record disclose or suggest a system comprising a switching circuit that directs the sensor signal to only one of many filters based on the temperature of a reagent solution that is supplied to the catalytic converter.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PAUL S. HYUN whose telephone number is (571)272-8559. The examiner can normally be reached on Monday-Friday 8AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571)-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1797

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Paul S Hyun/
Examiner, Art Unit 1797

/Jill Warden/
Supervisory Patent Examiner, Art Unit 1797